SEQUENCE LISTING

<110> Simmons, Carl R.

<120> Nucleic Acids Encoding Defense Inducible Proteins and Uses Thereof

<130> 35718/242990

<141> 02/28/2002

<150> 60/272,227

<151> 02/28/2001

<160> 25

<170> FastSEQ for Windows Version 4.0

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<212> DNA
<213> Zea mays

<220>
<221> CDS
<222> (89)...(367)

<400> 1

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tcggaggaca caccaagcgt ctgcacca atg gct tac tac cag gag gtg gac         112
                                 Met Ala Tyr Tyr Gln Glu Val Asp
                                   1               5

tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc ggc cgc       160
Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe Gly Arg
     10                  15                  20

cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc gag gag       208
His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe Glu Glu
 25                  30                  35                  40

gtc gac acg gta tca cgc gcc ggc gcc aac cac cac cac cac cat ggt       256
Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His His Gly
                 45                  50                  55

cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc gag gag       304
His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val Glu Glu
             60                  65                  70

gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag agc ttc       352
Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu Ser Phe
         75                  80                  85
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ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc gttcgtgctt      407
Leu Ala Arg Ala Asn
     90

gcctgcgtgc cttatgtatg tctgtggttg actggttgtg cagggtcatc gtacttggct    467
atcgtacgtg cacgcactca gctcctgtac gaattacgac aataagctcg tgacctgaat    527
aaaacttctt cgtaatacta atacctacat caaaaaaaaa aaaaaaaaaa aaaaaaaaaa    587
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa    647
aaaaaaaaaa aaaaaaaaaa aaaaaaaaa                                      676

<210> 2
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<212> PRT
<213> Zea mays

<400> 2
Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val
    50                  55                  60
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu
65                  70                  75                  80
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90

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<213> Zea mays

<220>
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<222> (96)...(374)

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ggcgctgcgc acagacacac caagcgtcgg cacca atg gct tac tac cag gag       113
                                    Met Ala Tyr Tyr Gln Glu
                                     1               5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc      161
Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe
            10                  15                  20

ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc      209
Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe
        25                  30                  35

gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac      257
Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His
    40                  45                  50
```

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cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc      305
His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val
 55                  60                  65                  70

gaa gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag      353
Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu
                 75                  80                  85

agc ttc ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc         404
Ser Phe Leu Ala Arg Ala Asn
             90

gttcgtgctt gcctgcgtgc cttatgtatg tctgtggttg actggttgtt cagggtcatc    464
gtacttggct atcgtacgtg cacgcactca gctcctgtac gaattacgac aataagctcg    524
tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa               574

<210> 4
<211> 93
<212> PRT
<213> Zea mays

<400> 4
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 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val
    50                  55                  60
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu
65                  70                  75                  80
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90

<210> 5
<211> 577
<212> DNA
<213> Zea mays

<220>
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<222> (99)...(377)

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acgggcgctg cgcacagaca caccaagcgt cggcacca atg gct tac tac cag gag     116
                                        Met Ala Tyr Tyr Gln Glu
                                         1               5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc      164
Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe
            10                  15                  20

ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc      212
Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe
        25                  30                  35
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gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac      260
Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His
     40                  45                  50

cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg gtc      308
His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg Val
 55                  60                  65                  70

gaa gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg gag      356
Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg Glu
                75                  80                  85

agc ttc ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc         407
Ser Phe Leu Ala Arg Ala Asn
            90

gttcgtgctt gcctgcgtgc cttatgtatg tctgtggttg actggttgtt cagggtcatc    467
gtacttggct atcgtacgtg cacgcactca gctcctgtac gaattacgac aataagctcg    527
tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa               577

<210> 6
<211> 93
<212> PRT
<213> Zea mays

<400> 6
Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val
    50                  55                  60
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu
65                  70                  75                  80
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90

<210> 7
<211> 580
<212> DNA
<213> Zea mays

<220>
<221> CDS
<222> (99)...(380)

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acgggcgctg cacacagaca caccaagcgt cggcacca atg gct tac tac cag gag     116
                                        Met Ala Tyr Tyr Gln Glu
                                         1               5

gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc ccg gcc ggc ttc      164
Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala Pro Ala Gly Phe
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```
                10                  15                  20

ggc cgc cac gga ggc ggc gtc cag cag cac gtc gtc aag gag aag ttc      212
Gly Arg His Gly Gly Gly Val Gln Gln His Val Val Lys Glu Lys Phe
         25                  30                  35

gag gag gtc gac acg gtc tca cgc gcc ggc gcc aac cac cac cac cac      260
Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala Asn His His His His
     40                  45                  50

cac cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc gag acc agg      308
His His Gly His His Gly Gly His Gly Phe Val Val Arg Glu Thr Arg
 55                  60                  65                  70

gtc gag gag gac atc aac acc tgc acc ggc gag gtc cac gag cgc agg      356
Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His Glu Arg Arg
                 75                  80                  85

gag agc ttc ctc gcc agg gct aac tgagccgccc ggcggccggc atccacgccc      410
Glu Ser Phe Leu Ala Arg Ala Asn
             90

gttcgtgcct gcctgcgtgc cttatgtatg tctgtggttg actggttgtg cagggtcatc     470
gtacttggct atcgtacgtg cacgcactca gctcctgtac gaattacgac aataagctcg     530
tgacctgaat aaaacttctt cgtaatacta aaaaaaaaaa aaaaaaaaaa                580

<210> 8
<211> 94
<212> PRT
<213> Zea mays

<400> 8
Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His His Gly His His Gly Gly His Gly Phe
    50                  55                  60
Val Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly
65                  70                  75                  80
Glu Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90

<210> 9
<211> 529
<212> DNA
<213> Zea mays

<220>
<221> CDS
<222> (53)...(331)

<400> 9
agcggcgggg aagaagggct acaagatgaa gacgcacaag gcgtcggcac ca atg gct     58
                                                        Met Ala
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tac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg gtg gcc      106
Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Ala
          5                  10                  15

ccg gcc ggc ttc ggc cgc cac ggc ggc ggc gtc cag cag cac gtc gtc      154
Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His Val Val
     20                  25                  30

aag gag aag ttc gag gag gtc gac acg gtc gca cgc gcc ggc gcc aac      202
Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ala Arg Ala Gly Ala Asn
 35                  40                  45                  50

cac cac cac cac cat ggt cac cac ggc ggc cac ggc ttc gtg gtg cgc      250
His His His His His Gly His His Gly Gly His Gly Phe Val Val Arg
                 55                  60                  65

gag acc agg gtc gag gag gac atc aac acc tgc acc ggc gag gtc cac      298
Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu Val His
             70                  75                  80

gag cgc agg gag agc ttc ctc gcc agg gct aac tgagcagccc gggcggccgg    351
Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
         85                  90

catccacgcc cgttcgtgcc tgcctgcgtg ccttatgtat gtctgtgatt gtgcagggtc    411
atcgtacttg gctagcgtac gtgcacgcac tcagctcctg tacgaattac gataataagc    471
tcgtgacctg aataaaactt cttcgtaata ctaataccta aaaaaaaaaa aaaaaaaa      529
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<210> 10
<211> 93
<212> PRT
<213> Zea mays

<400> 10

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Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ala Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His Gly His His Gly Gly His Gly Phe Val
    50                  55                  60
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu
65                  70                  75                  80
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90
```

<210> 11
<211> 22
<212> DNA
<213> Zea mays

<400> 11

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gcaccaatgg cttactacca gg                                             22
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<210> 12
<211> 19
<212> DNA
<213> Zea mays

<400> 12
cgggcggctc agttagccc 19

<210> 13
<211> 348
<212> DNA
<213> Oryza sativa

<220>
<221> CDS
<222> (52)...(348)

<221> misc_feature
<222> (1)...(348)
<223> n = A,T,C or G

<400> 13
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Met Ala
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cac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg gtg acc 105
His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val Thr
5 10 15

ccc acc ggc ggc ttc ctc ggc cgc ggc ggc gtg cag cag cag cac gtc 153
Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln His Val
20 25 30

gtc aag gag acg ttc cag gag atc gac ang tcc ggc tcc ggc cgg can 201
Val Lys Glu Thr Phe Gln Glu Ile Asp Xaa Ser Gly Ser Gly Arg Xaa
35 40 45 50

can cac aac cac aac cac ggc aac gac tac ctn atg gtg cgc gag acc 249
Xaa His Asn His Asn His Gly Asn Asp Tyr Xaa Met Val Arg Glu Thr
55 60 65

aag gtn gag gag gac ttt aac acc tgc acc ggc gag ttt cgc gag cgc 297
Lys Xaa Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg Glu Arg
70 75 80

aan aag gag ctt tcc tgc tna agt ccg act tna tcg aac ctg ctg tgt 345
Xaa Lys Glu Leu Ser Cys Xaa Ser Pro Thr Xaa Ser Asn Leu Leu Cys
85 90 95

gta 348
Val

<210> 14
<211> 99

<212> PRT
<213> Oryza sativa

<220>
<221> VARIANT
<222> (1)...(99)
<223> Xaa = Any Amino Acid

<400> 14
Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1   5   10   15
Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln
            20   25   30
His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Xaa Ser Gly Ser Gly
        35   40   45
Arg Xaa Xaa His Asn His Asn His Gly Asn Asp Tyr Xaa Met Val Arg
    50   55   60
Glu Thr Lys Xaa Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg
65   70   75   80
Glu Arg Xaa Lys Glu Leu Ser Cys Xaa Ser Pro Thr Xaa Ser Asn Leu
                85   90   95
Leu Cys Val

<210> 15
<211> 591
<212> DNA
<213> Oryza sativa

<220>
<221> CDS
<222> (61)...(333)

<221> misc_feature
<222> (1)...(591)
<223> n = A,T,C or G

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atg gct cac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg 108
Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1   5   10   15

gtg acc ccc acc ggc ggc ttc ctc ggc cgc ggc ggc gtg cag cag cag 156
Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln
            20   25   30

cac gtc gtc aag gag acg ttc cag gag atc gac agg tcc ggc tcc ggc 204
His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Arg Ser Gly Ser Gly
        35   40   45

cgc cac cac cac aac cac aac cac ggc aac gac tac ctg atg gtg cgc 252
Arg His His His Asn His Asn His Gly Asn Asp Tyr Leu Met Val Arg
    50   55   60

gag acc aag gtg gag gag gac ttc aac acc tgc acc ggc gag ttc cgc 300
Glu Thr Lys Val Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg

```
65                  70                  75                  80

gag cgc aag cag agc ttc ctg ctc aag tcc gac tgatcgaacc tgctgtgtgt    353
Glu Arg Lys Gln Ser Phe Leu Leu Lys Ser Asp
                85                  90

acccgtgtac gtacgtacgt atatgtgtgc ccgtacgtag tcgtggtggt catgtggtgg    413
cttagctcta cgtgtatatc gtgcgtgcgt gtgtacgtgc gtacacggag cttagctaat    473
tagcaccttc ttccctgtgc gattactacg aacggagagg gggggtgtat gaaaaataat    533
tcgtgacctg atatataanc tgyctaatac acggtaaaaa aaaaaaaaaa aaagaaaa      591

<210> 16
<211> 91
<212> PRT
<213> Oryza sativa

<400> 16
Met Ala His Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Thr Pro Thr Gly Gly Phe Leu Gly Arg Gly Gly Val Gln Gln Gln
            20                  25                  30
His Val Val Lys Glu Thr Phe Gln Glu Ile Asp Arg Ser Gly Ser Gly
        35                  40                  45
Arg His His His Asn His Asn His Gly Asn Asp Tyr Leu Met Val Arg
    50                  55                  60
Glu Thr Lys Val Glu Glu Asp Phe Asn Thr Cys Thr Gly Glu Phe Arg
65                  70                  75                  80
Glu Arg Lys Gln Ser Phe Leu Leu Lys Ser Asp
                85                  90

<210> 17
<211> 524
<212> DNA
<213> Triticum aestivum

<220>
<221> CDS
<222> (57)...(338)

<221> misc_feature
<222> (1)...(524)
<223> n = A,T,C or G

<400> 17
caagcacttc gacgtcgcac gggcgctgca cacagacaca ccaagcgtcg gcacca atg     59
                                                              Met
                                                               1

gct tac tac cag gag gtg gac tac tgc tcg gag gag gtg agg tcg gtg      107
Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser Val
            5                  10                  15

gcc ccg gcc ggc ttc ggc cgc cac gga ggc ggc gtc cag cag cac gtc      155
Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His Val
        20                  25                  30

gtc aag gag aag ttc gag gag gtc gac acg gtc tca cgc gcc ggc gcc      203
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```
Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly Ala
     35                  40                  45

aac cac cac cac cac cac cat ggt cac cac ggc ggc cac ggc ttc gtg      251
Asn His His His His His His Gly His His Gly Gly His Gly Phe Val
 50                  55                  60                  65

gtg cgc gag acc agg gtc gag gag gac atc aac acc tgc acc ggc gag      299
Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly Glu
                 70                  75                  80

gtc cac gag cgc agg gag agc ttc ctc gcc agg gct aac tgagccgccc       348
Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
             85                  90

ggcggccggc atccacgccc gttcgtgcct gcctgcgtgc cytatstatg tctgtggttg    408
actggttgtg caaggtcatc ntacttggct atcgtacgts mascactcrs tcctgtmcaa    468
ttacacaata rctcctgacc tgaataaaac tctcstatac taaaaaaaaa araaaa        524

<210> 18
<211> 94
<212> PRT
<213> Triticum aestivum

<400> 18
Met Ala Tyr Tyr Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ser
 1               5                  10                  15
Val Ala Pro Ala Gly Phe Gly Arg His Gly Gly Gly Val Gln Gln His
            20                  25                  30
Val Val Lys Glu Lys Phe Glu Glu Val Asp Thr Val Ser Arg Ala Gly
        35                  40                  45
Ala Asn His His His His His His Gly His His Gly Gly His Gly Phe
    50                  55                  60
Val Val Arg Glu Thr Arg Val Glu Glu Asp Ile Asn Thr Cys Thr Gly
65                  70                  75                  80
Glu Val His Glu Arg Arg Glu Ser Phe Leu Ala Arg Ala Asn
                85                  90

<210> 19
<211> 584
<212> DNA
<213> Triticum aestivum

<220>
<221> CDS
<222> (46)...(321)

<221> misc_feature
<222> (1)...(584)
<223> n = A,T,C or G

<400> 19
aacgcacgaa acatacacaa aacccaagca catcagtaga tcggc atg gcg cac ttc     57
                                                 Met Ala His Phe
                                                  1

cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg ggc tac ccg      105
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```
Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val Gly Tyr Pro
 5                  10                  15                  20

gcc cgc cgc ggc tgc ggc ggc gtg cag gag cac atc gtc aag gag acg      153
Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile Val Lys Glu Thr
                25                  30                  35

ttc gtg cag gag ttc gac acc gcc ggc cgc cgc cay ggt cac cac ggt      201
Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg Xaa Gly His His Gly
            40                  45                  50

cac cac ggc cgy ggc tcy ggt cac ttc gag gtg cgc gag agc aag cts      249
His His Gly Xaa Gly Xaa Gly His Phe Glu Val Arg Glu Ser Lys Xaa
        55                  60                  65

gar gag gac atc aac acc cgc acc ggs gag ttc cac gaa cgc aag gga      297
Xaa Glu Asp Ile Asn Thr Arg Thr Xaa Glu Phe His Glu Arg Lys Gly
    70                  75                  80

aay ttc tcs tcc aag gcc gat gac trasytwaac ayttmcggac acactacatg     351
Xaa Phe Xaa Ser Lys Ala Asp Asp
 85                  90

tgtgtawatt mygsattcaa mattatatgt atgtktkatg ttkcccamat ccywtacctt    411
tgcaagctkc cttyttggcg gsaacaaccc yatygtgcsc csttcaacct taataancct    471
ancntgaaca gataaactnc tgatagtnnt aaaaaaaggg ggccgtacca atcgctatat    531
ggtctttagc cctncggcgt cgttncactc tnctggaaan ctggtacact tan           584

<210> 20
<211> 92
<212> PRT
<213> Triticum aestivum

<400> 20
Met Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala
 1               5                  10                  15
Val Gly Tyr Pro Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile
            20                  25                  30
Val Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg His
        35                  40                  45
Gly His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg
    50                  55                  60
Glu Ser Arg Leu Glu Glu Asp Ile Asn Thr Arg Thr Gly Glu Phe His
65                  70                  75                  80
Glu Arg Lys Glu Asn Phe Val Val Arg Ala Asp Asp
                85                  90

<210> 21
<211> 436
<212> DNA
<213> Triticum aestivum

<220>
<221> CDS
<222> (54)...(326)

<400> 21
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                                                          Met
                                                           1

gcg cac ttc cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg      104
Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val
             5                  10                  15

ggc aac ccg gcc cgc cgc ggc ggc ggc gtg cag gag cac atc gtc aag      152
Gly Asn Pro Ala Arg Arg Gly Gly Gly Val Gln Glu His Ile Val Lys
         20                  25                  30

gag acg ttc gtg cag gag ttc gac acc tcc ggc cgc cgc cac ggt cac      200
Glu Thr Phe Val Gln Glu Phe Asp Thr Ser Gly Arg Arg His Gly His
     35                  40                  45

cac ggt cac cac ggc cgc ggc tct ggt cac ttc gag gtg cgc gag agc      248
His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg Glu Ser
 50                  55                  60                  65

agg ctc gag gag gac ttc aac acc cgc acc ggg gag ttc cac gag cgc      296
Arg Leu Glu Glu Asp Phe Asn Thr Arg Thr Gly Glu Phe His Glu Arg
                 70                  75                  80

aag gag aac ttc gtc gtc agg gcc gat gac tgagcttaca cgtaacggag        346
Lys Glu Asn Phe Val Val Arg Ala Asp Asp
             85                  90

cacactacga tgtgtgtata tgtatgcatg tcagcagtat atgtatgtgt gatgttgcgc    406
acagtcgtat agcgtatgca ggcgtgcgtg                                    436

<210> 22
<211> 91
<212> PRT
<213> Triticum aestivum

<400> 22
Met Ala His Phe Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala
 1               5                  10                  15
Val Gly Asn Pro Ala Arg Arg Gly Gly Gly Val Gln Glu His Ile Val
            20                  25                  30
Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ser Gly Arg Arg His Gly
        35                  40                  45
His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg Glu
    50                  55                  60
Ser Arg Leu Glu Glu Asp Phe Asn Thr Arg Thr Gly Glu Phe His Glu
65                  70                  75                  80
Arg Lys Glu Asn Phe Val Val Arg Ala Asp Asp
                85                  90

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Met Ala His Phe
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cag gag gtg gac tac tgc tcg gag gag gtg agg gcg gtg ggc tac ccg 105
Gln Glu Val Asp Tyr Cys Ser Glu Glu Val Arg Ala Val Gly Tyr Pro
5 10 15 20

gcc cgc cgc ggc tgc ggc ggc gtg cag gag cac atc gtc aag gag acg 153
Ala Arg Arg Gly Cys Gly Gly Val Gln Glu His Ile Val Lys Glu Thr
25 30 35

ttc gtg cag gag ttc gac acc gcc ggc cgc cgc cay ggt cac cac ggt 201
Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg Xaa Gly His His Gly
40 45 50

cac cac ggc cgy ggc tcy ggt cac ttc gag gtg cgc gag agc aag cts 249
His His Gly Xaa Gly Xaa Gly His Phe Glu Val Arg Glu Ser Lys Xaa
55 60 65

gar gag gac atc aac acc cgc acc ggs gag ttc cac gaa cgc aag gga 297
Xaa Glu Asp Ile Asn Thr Arg Thr Xaa Glu Phe His Glu Arg Lys Gly
70 75 80

aay ttc tcs tcc aag gcc gat gac trasytwaac ayttmcggac acactacatg 351
Xaa Phe Xaa Ser Lys Ala Asp Asp
85 90

tgtgtawatt mygsattcaa mattatatgt atgtktkatg ttkcccamat ccywtacctt 411
tgcaagctkc cttyttggcg gsaacaaccc yatygtgcsc csttcaacct taataancct 471
ancntgaaca gataaactnc tgatagtnnt aaaaaaaggg ggccgtacca atcgctatat 531
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Val Lys Glu Thr Phe Val Gln Glu Phe Asp Thr Ala Gly Arg Arg His
35 40 45
Gly His His Gly His His Gly Arg Gly Ser Gly His Phe Glu Val Arg
50 55 60
Glu Ser Lys Leu Glu Glu Asp Ile Asn Thr Arg Thr Gly Glu Phe His
65 70 75 80
Glu Arg Lys Gly Asn Phe Ser Ser Lys Ala Asp Asp

85 90

<210> 25
<211> 36
<212> DNA
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<220>
<223> Designed oligonucleotide based upon an adaptor used for cDNA library construction and poly(dT) to remove clones which have a poly(A) tail but no cDNA insert.

<400> 25
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